State of California
AIR RESOURCES BOARD

# STAFF REPORT

# ANALYSIS OF THE WESTERN MOJAVE DESERT AND VENTURA COUNTY 8-HOUR OZONE ATTAINMENT PLANS

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California Environmental Protection Agency
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## EXECUTIVE SUMMARY

Air Resources Board (ARB) staff is proposing Board approval of the Western Mojave Desert and Ventura County 8-hour ozone attainment plans. These plans are proposed revisions to California's State Implementation Plan (SIP) for ozone. The Western Mojave Desert, which consists of the Antelope Valley portion of Los Angeles County and the southeastern portion of San Bernardino County, and Ventura County are currently designated by U.S. EPA as nonattainment for the 8-hour ozone standard with moderate classification. Under the federal Clean Air Act Amendments of 1990 (the Act), moderate ozone nonattainment areas have a nominal attainment date of June 15, 2010.

The Western Mojave Desert and Ventura planning areas are downwind of the South Coast Air Basin (South Coast). The Western Mojave Desert is also downwind of the San Joaquin Valley Air Basin (San Joaquin Valley), though to a lesser extent. Prior ARB transport assessments indicate that ozone transport from these upwind areas contributes to high ozone levels in the downwind areas during the summer ozone season. Photochemical ozone modeling conducted by the South Coast Air Quality Management District (SCAQMD) indicates that emissions generated by sources within the Western Mojave Desert are not sufficient to cause ozone violations, indicating that South Coast emissions levels must decrease before the Western Mojave Desert area can attain the 8-hour national ambient air quality standards (NAAQS). Modeling indicates that emission reductions in the South Coast are also needed to ensure attainment in Ventura County.

Due to this ozone transport, the Antelope Valley Air Quality Management District (AVAQMD) and Mojave Desert Air Quality Management District (MDAQMD) have each requested a reclassification to severe-17 for their respective portions of the Western Mojave Desert Ozone Nonattainment Area, which would result in an attainment date of 2021 for this region. The Ventura County Air Pollution Control District (VCAPCD) has requested that U.S. EPA reclassify Ventura County as a serious nonattainment area, which would result in a 2013 attainment date.

This staff report summarizes the ozone attainment plans for both the Western Mojave Desert and Ventura County. The report contains discussions of air quality modeling and weight of evidence analyses supporting the reclassification request and the attainment demonstration, as well as the control strategy, conformity budget, reasonable further progress demonstration, and other plan elements.

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# I. INTRODUCTION

## A. Overview

Air pollution levels in the Western Mojave Desert and Ventura County exceed the national ambient air quality standard (NAAQS) for ozone of 0.08 parts per million (ppm), averaged over an 8-hour period. The U.S. Environmental Protection Agency (U.S. EPA) has designated both the Western Mojave Desert, which consists of the Antelope Valley portion of Los Angeles County and the southeastern portion of San Bernardino County, and Ventura County as nonattainment for the 8-hour ozone standard with moderate classification. Under the federal Clean Air Act Amendments of 1990 (the Act), moderate ozone nonattainment areas have a June 15, 2010 attainment date.

The Antelope Valley Air Quality Management District (AVAQMD) and Mojave Desert Air Quality Management District (MDAQMD) have each requested a reclassification to severe-17 for their respective portions of the Western Mojave Desert Ozone Nonattainment Area, which would result in an attainment date of 2021 for this region. The Ventura County Air Pollution Control District (VCAPCD) has requested that U.S. EPA reclassify Ventura County as a serious nonattainment area, which would result in a 2013 attainment date. Each of these districts has adopted a plan demonstrating attainment by the new attainment deadlines. Each plan includes air quality modeling and weight of evidence (WOE) analyses supporting the reclassification request and the attainment demonstration, as well as the control strategy, conformity budget, reasonable further progress (RFP) demonstration, and other plan elements required by the Act.

Each district made its draft attainment demonstration plans available for a 30-day public review period prior to local adoption. State law specifies that the Air Resources Board (ARB or Board) must adopt the nonattainment area plans approved by a local district, unless ARB finds, after a public hearing, that the locally adopted plans will not meet the requirements of the Act.

ARB staff has reviewed the 8-hour ozone attainment plans prepared by each of these local districts, and recommends that the Board adopt these plans as proposed revisions to California's State Implementation Plan (SIP) for ozone.

## B. Air Quality Planning Background

The Act establishes planning requirements for areas that routinely exceed the health-based NAAQS. These nonattainment areas must develop and enact SIPs that demonstrate how they will attain the standards by specified dates. Federal law holds each state responsible for implementing the provisions of the Act.

State law[1] designates the ARB as the State's air pollution control agency for all purposes set forth in federal law, including the preparation of the SIP. State law further specifies that the ARB must adopt the nonattainment area plan approved by a local air district, unless the ARB finds, after a public hearing, that the locally adopted plan will not meet the requirements of the Act.[2] California SIP revisions must be submitted to U.S. EPA by ARB. The rules and commitments in a U.S. EPA-approved SIP are federally enforceable. The Act also allows interested parties to sue U.S. EPA, the State, or local agencies to compel implementation of an approved SIP and other provisions of the Act.

## C. 8-Hour Ozone Planning Requirements

Attainment demonstration plans must include the following:

- a current, comprehensive, and accurate emissions inventory;
- air quality modeling demonstrating attainment of the NAAQS;
- control strategies capable of meeting attainment, and contingency measures in the event the controls fall short of achieving needed reductions;
- RFP plans;
- demonstration that all reasonably available control technology (RACT) or reasonably available control measures (RACM) have been applied to existing sources; and
- transportation conformity budgets.

*Area Classifications*

The Act provides for ozone nonattainment areas to be classified according to pollution levels recorded in each area. Areas with lower classifications have the least amount of time to meet the standard. Areas with higher classifications are given more time to meet the standard and must adopt more stringent requirements for major new sources and modifications. Using ozone levels recorded from 2001 through 2004, U.S. EPA classified both the Western Mojave Desert and Ventura County as moderate nonattainment areas for the 8-hour ozone standard. The text box shows classifications and nominal attainment years for the 8-hour ozone standard.

**Area Classifications** reflect severity of local pollution levels and establish the area's attainment deadline. 8-hour ozone standard deadlines for each classification are shown below.

| | |
|---|---|
| Marginal | 2007 |
| Moderate | 2010 |
| Serious | 2013 |
| Severe | 2019 |
| Severe-17 | 2021 |
| Extreme | 2024 |

The specific attainment date for the 8-hour ozone NAAQS is June 15 of the attainment year. Because the ozone attainment deadlines are mid-year, guidance

[1] California Health and Safety Code (HSC) Section 39602.
[2] HSC Section 41650(a).

calls for the analysis of attainment to be done for the year prior to the actual attainment year. Therefore, emissions and emission reduction targets must be achieved by the year prior to the actual attainment year. In the case of a nominal attainment deadline of 2010, emission reduction targets must be met in 2009 to demonstrate 2010 attainment.

*Reclassification*

The Act allows states to request the reclassification of any ozone nonattainment area to a higher classification, and requires the Administrator to grant such requests.[1] The AVAQMD and MDAQMD have requested a reclassification of the Western Mojave Desert from moderate to severe-17, while the VCAPCD has requested a reclassification from moderate to serious. ARB Executive Officer James Goldstene submitted these requests to U.S. EPA on February 14, 2008. U.S. EPA approved the Ventura County request effective June 19, 2008, characterizing its decision to approve voluntary reclassification requests as nondiscretionary under the Act.[2] In its Ventura County reclassification notice, U.S. EPA indicated that reclassification requests for other California areas were pending consultation with Indian tribes in the affected areas.

## D. Emission Inventories

An emissions inventory is a critical tool used to evaluate, control, and mitigate air pollution. At its core, an emissions inventory is a systematic listing of the sources of air pollutants along with the amount of pollutants emitted from each source or category over a given time period. The planning emissions inventory is divided into four major categories: point, area-wide, on-road mobile and other mobile sources. The summer season inventory is used for ozone planning because it reflects the activity levels and conditions present when higher ozone levels occur in the Southern California region.

California's 2007-2008 SIP updates use a 2002 baseline inventory; the inventory was calibrated to 2002 emissions and activity levels, and inventories for other years are back-cast or forecast from that base inventory. The inventories reflect rules adopted through December 31, 2006.

On-road motor vehicle emissions were generated using ARB's mobile source emissions model, EMFAC2007. Off-road mobile source emissions were generated using ARB's OFFROAD model. Both models were developed for use in the 2007-2008 SIP revisions, and represent significant improvements over models used in prior SIP updates. On-road motor vehicle activity data reflect projections provided by SCAG in February and March, 2008.

[1] Clean Air Act, Section 181(b)(3)
[2] Federal Register Volume 73 No. 98, May 20, 2008, page 29074.

## E. Air Quality Modeling

The Western Mojave Desert and Ventura County ozone nonattainment areas are small parts of the greater Southern California region. The photochemical model in these plans covers the entire Southern California region and a portion of northern Mexico. The modeling effort has been performed as a joint project by all of the air districts in the region and ARB, with SCAQMD staff and resources providing most of the modeling and ARB staff providing WOE supplementary reviews.

The modeled attainment demonstration in this plan was prepared using photochemical dispersion and meteorological modeling tools developed in response to U.S. EPA modeling guidelines, and recommendations from air quality modeling experts. The model predicts future ambient ozone concentrations under historical conditions that led to high ambient ozone concentrations. These conditions are typically multi-day episodes in which the State and national ozone standards were exceeded.

The meteorological fields were generated using the MM5 prognostic meteorological model, and district staff developed the required emissions inventories. The ozone air quality modeling utilized the Comprehensive Air Quality Model with Extensions (CAMx) model, with initial and boundary conditions based on estimates of clean-air concentrations. Analysis of the model outputs included the estimation of 1-hour and 8-hour ozone concentrations for each ozone monitoring site within the domain, as well as statistical measures comparing observed and simulated ozone concentrations. These analyses were used to evaluate model performance by sub-region within the domain.

The modeling domain is based on the domain defined for the 1997 Southern California Ozone Study (SCOS) and includes the South Coast Air Basin and the surrounding coastal, desert, and mountain areas. The northern boundary of the model extends into Santa Barbara and Kern counties, while the southern boundary extends into Mexico. The eastern boundary of the modeling extends to the California-Nevada border, while the western boundary extends into the Pacific Ocean. The domain horizontal grid is 116 by 80 cells, with a resolution of five kilometers. This large domain allows an evaluation of the impact of emissions generated in the region's urban core on surrounding areas such as the Western Mojave Desert and Ventura County.

The emissions inventory used for photochemical modeling is consistent with the emissions inventories presented in the locally adopted attainment demonstration plans and summarized in this report.

The photochemical modeling was conducted by staff of the South Coast Air Quality Management District (SCAQMD), using the models and methodologies described in Appendix V of the SCAQMD's 2007 Air Quality Management Plan

(AQMP). Further information about the photochemical modeling approach is available from the SCAQMD, at:

http://www.aqmd.gov/aqmp/07aqmp/aqmp/Appendix_V.pdf.

### 1. Modeled Attainment Projection

Future years are simulated twice: first, using the uncontrolled emissions inventory; and second, using a reduced emissions inventory controlled by the proposed ozone control strategy. Comparing the uncontrolled and controlled ambient ozone concentrations identifies the effectiveness of the proposed ozone control strategy. The modeling demonstrates attainment if using an emissions inventory that reflects the proposed control strategy results in projected design values, in the attainment year, that achieve the ozone NAAQS.

As required by U.S. EPA guidance, a relative reduction factor (RRF) approach was used in projecting future design values. The RRF reflects the ratio between the future year model prediction (in this case the end of 2012 for Ventura, and 2020 for the Western Mojave Desert) and the reference year model prediction (in this case 2005). A reference year design value is then multiplied by the RRF to project a future year design value. The modeling conducted by the SCAQMD for use in the Western Mojave Desert and Ventura SIP submittals satisfies the modeled attainment test.

### 2. Weight of Evidence

Due to the uncertainties inherent in photochemical air quality modeling, U.S. EPA guidance provides for the use of analyses, such as air quality and emissions trends analyses, to supplement air quality modeling results. Under U.S. EPA's guidelines for the use of WOE in ozone attainment demonstrations, a WOE analysis may be used to support a determination that attainment will be achieved, despite the results of the modeled attainment test, when the model predicts a future design value of 82-87 parts per billion (ppb) at one or more sites or grid cells.[1]

## F. State Control Strategy

ARB is responsible for controlling emissions from mobile sources, consumer products, and fuels. ARB's ongoing mobile source control program will provide significant NOx and ROG emission reductions in the Western Mojave Desert and Ventura County. Under the existing control program (rules adopted in October 2006 and earlier), vehicles and equipment operating in California are subject to the most stringent tailpipe emission standards in the world. Existing on-road vehicle emission controls will decrease ROG and NOx by approximately 36

[1] *Ibid*, U.S. EPA (2007).

percent in Ventura County by 2012, and by 50 to 60 percent by 2020 in the Western Mojave Desert.

In September, 2007, ARB adopted a comprehensive combination of technologically-feasible, cost-effective, and far-reaching measures for motor vehicles and other statewide sources as part of the SIP for meeting the 8-hour ozone and fine particulate matter (PM2.5) NAAQS. Table I.1 lists the measures in the 2007 State Strategy, with expected adoption and implementation timeframes.

**Table I.1 - State Strategy Control Measures**

| Proposed New SIP Measures | Implementing Agency | Expected Action | Expected Implementation |
|---|---|---|---|
| **Passenger Vehicles** | | | |
| Smog Check Improvements | BAR | 2007-2008 | By 2010 |
| Expanded Vehicle Retirement | ARB/BAR | 2008-2014 | 2008-2014 |
| Modifications to Reformulated Gasoline Program | ARB | 2007 | Phase-In Starting 2010 |
| **Trucks** | | | |
| Cleaner In-Use Heavy-Duty Trucks | ARB | 2008 | 2010-2015 |
| **Goods Movement Sources** | | | |
| Auxiliary Ship Engine Cold Ironing & Clean Technology | EPA/ARB/ Local | 2007-2008 | Phase-In Starting 2010 |
| Cleaner Main Ship Engines and Fuel | EPA/ARB/ Local | Fuel: 2007 / Engines: 2009 | 2007-2010 / Phase-In Starting 2010 |
| Port Truck Modernization | ARB/Local | 2007-2008 | 2008-2020 |
| Accelerated Intro. of Cleaner Line-Haul Locomotives | EPA/ARB | 2007-2008 | Starting in 2012 |
| Clean Up Existing Harbor Craft | ARB | 2007 | 2009-2018 |
| **Off-Road Equipment** | | | |
| Cleaner In-Use Off-Road Equipment (over 25hp) | ARB | 2007 | Phase-In Starting 2008 |
| Cleaner In-Use Agricultural Equipment | ARB | 2009-2010 | TBD |
| **Other Off-Road Sources** | | | |
| New Emission Standards for Recreational Boats | ARB | 2009-2010 | 2012-2013 |
| Expanded Off-Road Rec. Vehicle Emission Standards | ARB | By 2010 | 2012-2015 |
| Enhanced Vapor Recovery for Above Ground Storage Tanks | ARB | 2007 | Phase-In Starting 2008 |
| Additional Evaporative Emission Standards | ARB | By 2010 | 2010-2012 |
| **Area-wide Sources** | | | |
| Consumer Products Program | ARB | 2007-2008 / 2010-2012 | By 2010 / By 2012-2014 |
| DPR Pesticide Regulation | DPR | 2008 | 2008 |

BAR = Bureau of Automotive Repair

DPR = Department of Pesticide Regulation

TBD = to be determined

The 2007 State Strategy includes 2014, 2020, and 2023 emission reductions commitments for the South Coast Air Basin, and 2014, 2017, 2020, and 2023 emission reductions for the San Joaquin Valley Air Basin. In addition to directly reducing emissions in these upwind areas, these commitments will indirectly improve air quality in downwind areas including the Western Mojave Desert and Ventura County.

## G. Transport

ARB transport assessments and air quality modeling conducted by the SCAQMD concur that emissions from the South Coast Air Basin and the San Joaquin Valley contribute to ozone exceedances in the Western Mojave Desert and, to a lesser extent, in Ventura County. The South Coast and San Joaquin Valley populations and emissions dwarf those in the downwind Ventura County and Western Mojave Desert ozone nonattainment areas, as shown below.

**Table I.2 - 2006 Population and Emissions Data**
(tpd, summer planning inventory)

| Nonattainment Area | Population | ROG | NOx |
|---|---|---|---|
| South Coast | 16,143,000 | 781 | 972 |
| San Joaquin Valley | 3,719,000 | 450 | 650 |
| Western Mojave Desert | 769,000 | 71 | 172 |
| Ventura County | 826,000 | 55 | 68 |

The significance of pollution transport in each area is discussed in more detail later in this report. SIP revisions for the South Coast and San Joaquin Valley commit to significant decreases in ROG and NOx emission in these upwind areas by 2014.

## H. Environmental Impacts

The California Environmental Quality Act (CEQA) requires that State and local agency projects be assessed for potential significant environmental impacts. Air quality plans are “projects” that are potentially subject to CEQA requirements. Both the AVAQMD and the MDAQMD have determined that the air quality plans are exempt from CEQA review and have prepared a Notice of Exemption for both plans. The VCAPCD’s Negative Declaration was adopted in conjunction with the District Board’s adoption of the 8-Hour Ozone Plan on March 13, 2008.

## I. Legal Authority

The Act requires states to provide for the attainment of NAAQS. The primary tool to be used in the effort to attain NAAQS is a plan that any state with one or more

nonattainment areas must develop, which provides for implementation, maintenance and enforcement of the standards in the SIP (Section 110(a)(1)).

State law charges the ARB with coordinating State, regional, and local efforts to attain and maintain both State and national standards. The direct statutory link between ARB and the mandates of the Act is found in Section 39602 of the Health and Safety Code (HSC). This provision states:

> "The state board is designated the air pollution control agency for all purposes set forth in federal law.
>
> The state board is designated as the state agency responsible for the preparation of the state implementation plan required by the Clean Air Act (42 U.S.C., Sec. 7401, et seq.) and, to this end, shall coordinate the activities of all districts necessary to comply with that act."

State law also limits what the ARB may submit as a SIP revision. HSC Section 39602 goes on to state,

> "Notwithstanding any other provision of this division, the state implementation plan shall only include those provisions necessary to meet the requirements of the Clean Air Act."

The California Clean Air Act (CCAA) requires districts to assess the progress the County has made toward meeting State ambient air quality standards during the previous three years. Ventura County incorporated the triennial assessment in the federal 8-hour ozone plan since the control measures implemented to attain the federal 8-hour standard will also help attain State air quality standards. ARB will exclude any provisions of the Ventura County and Western Mojave Desert plans that relate solely to the CCAA requirements from the SIP submittal.

## II. WESTERN MOJAVE DESERT OZONE NONATTAINMENT AREA

### A. Introduction

The U.S. EPA combined portions of Los Angeles and San Bernardino counties into the Western Mojave Desert (WMD) 8-Hour Ozone Nonattainment Area. The WMD includes the northeastern portion of Los Angeles County and the southwestern portion of San Bernardino County, both of which are in the Mojave Desert Air Basin (Figure II.1). The AVAQMD has jurisdiction over the Los Angeles County portion of the WMD, while the MDAQMD has jurisdiction over the San Bernardino County portion of the WMD. The U.S. EPA has classified the Western Mojave Desert 8-Hour Ozone Nonattainment Area as a moderate nonattainment area with an attainment date of June 2010.

The Antelope Valley and Mojave Desert AQMDs have adopted separate attainment demonstration plans as described in this staff report. To meet federal

requirements, the two areas adopted identical conformity budgets and RFP plans covering the entire WMD nonattainment area.

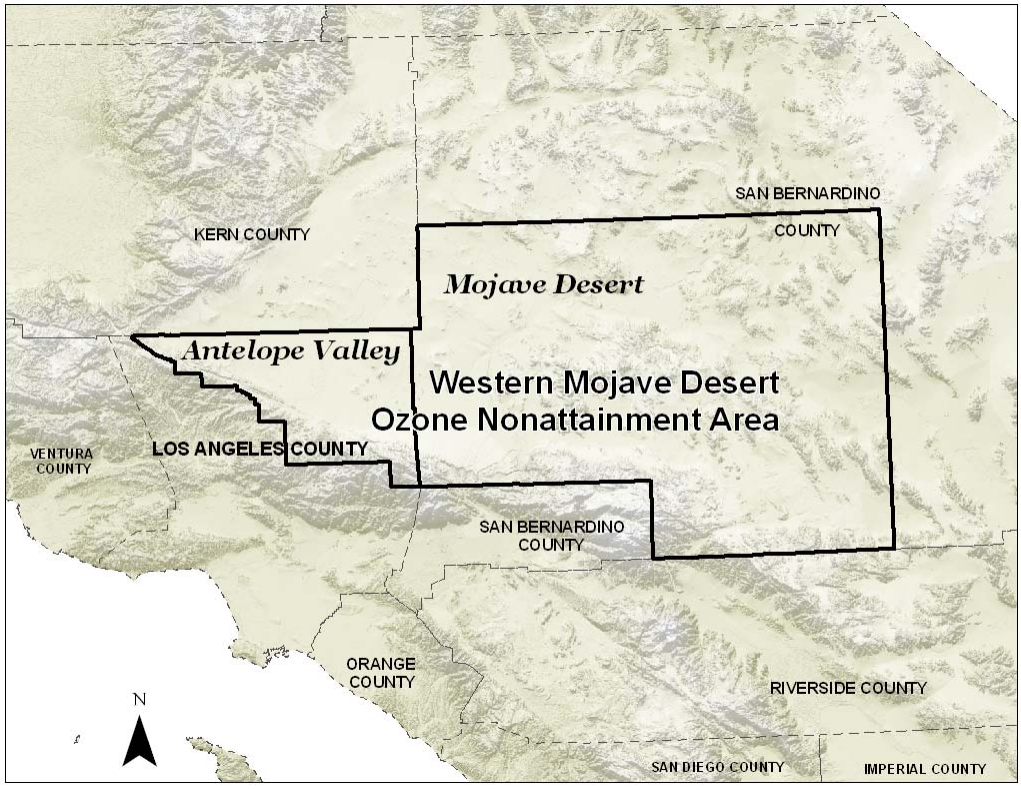
### 1. Mojave Desert Air Quality Management District

#### i. Profile of Mojave Desert

The MDAQMD portion of the Western Mojave Desert nonattainment area includes the following San Bernardino County communities: Phelan, Hesperia, Adelanto, Victorville, Apple Valley, Barstow, Joshua Tree, Yucca Valley and Twentynine Palms. This area covers more than 20,000 square miles and is home to over 450,000 people. The area is characterized by hot, dry summers and cool winters, with little precipitation. This area also includes portions of the National Training Center at Fort Irwin, the Marine Corps Air Ground Combat Center, Edwards Air Force Base, the Mojave National Preserve and Joshua Tree National Park.

The primary roadways in the MDAQMD are Interstate 15, Interstate 40 and Interstate 395. All of these highways carry a significant amount of transiting heavy-duty truck traffic, and Interstate 15 carries a substantial amount of commute traffic into the greater Los Angeles Basin. The district includes railroad track connecting the Ports of Los Angeles and Long Beach with the rest of the

**Figure II.1 - Western Mojave Desert Ozone Nonattainment Area and Surrounding Region**



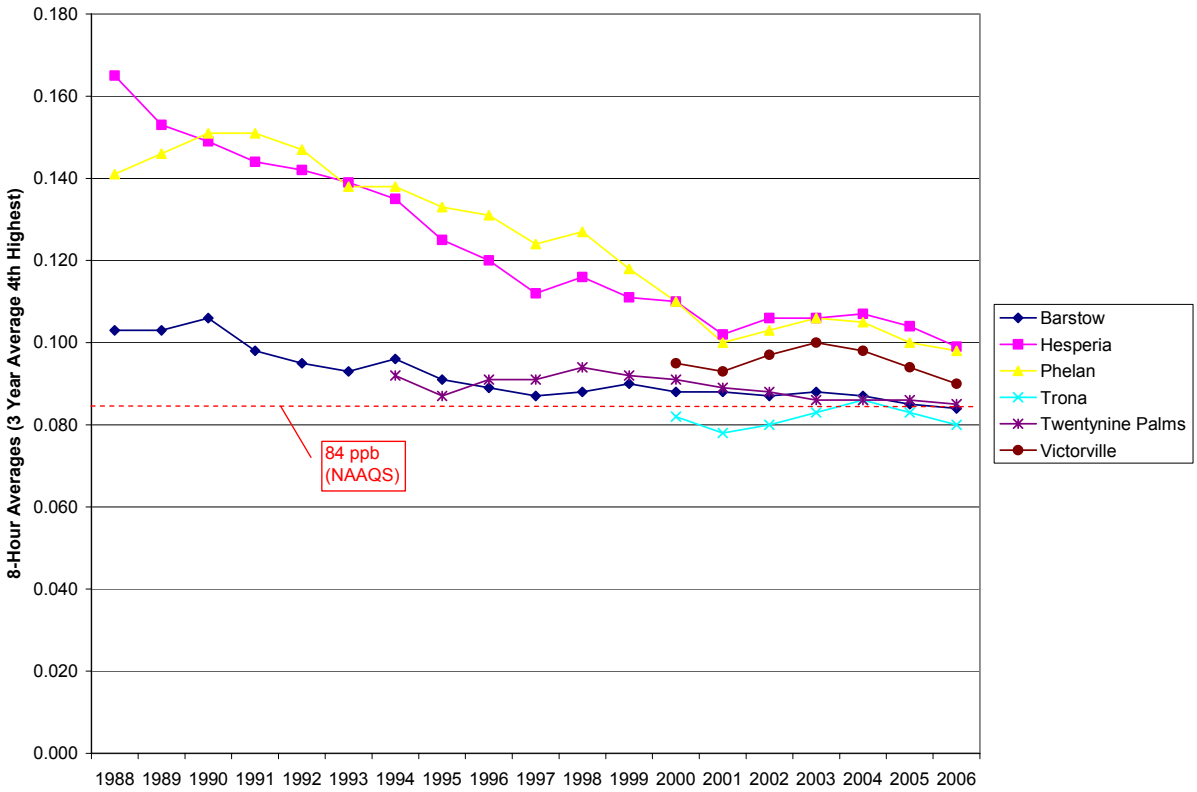
Continental United States, as well as high-pressure natural gas transmission pipelines that deliver most of the natural gas consumed in California.

The MDAQMD is a growing bedroom community, but does have significant mining and military activity.

### ii. Historical Air Quality

The MDAQMD has experienced a substantial reduction in maximum 8-hour ozone concentrations, as displayed in Figure II.2 (Trona is not within the nonattainment area but is shown for comparison). The stations closest to the South Coast Air Basin – Phelen, Hesperia, and Victorville – have historically recorded the highest historical ozone concentrations.

**Figure II.2 - MDAQMD 8-Hour Ozone Design Value Trend**




## 2. Antelope Valley Air Quality Management District

### i. Profile of Antelope Valley

The Antelope Valley is the desert portion of Los Angeles County. The AVAQMD has been designated nonattainment for the 8-hour ozone NAAQS by U.S. EPA as a portion of the Western Mojave Desert nonattainment area. The AVAQMD

portion of the WMD covers 1,300 square miles. Most of the Antelope Valley's more than 400,000 residents live in or near the cities of Lancaster and Palmdale. The region is characterized by a wide, arid valley with little precipitation. Air Force Plant 42 and a portion of Edwards Air Force Base are located within the AVAQMD.

The primary roadways in the Antelope Valley are State Route 14 and State Route 18. Both of these arterials carry substantial daily commute traffic from the region to the South Coast Air Basin.

Although the Antelope Valley is largely a bedroom community, aerospace development and manufacturing facilities also have a significant local presence.

#### ii. Historical Air Quality

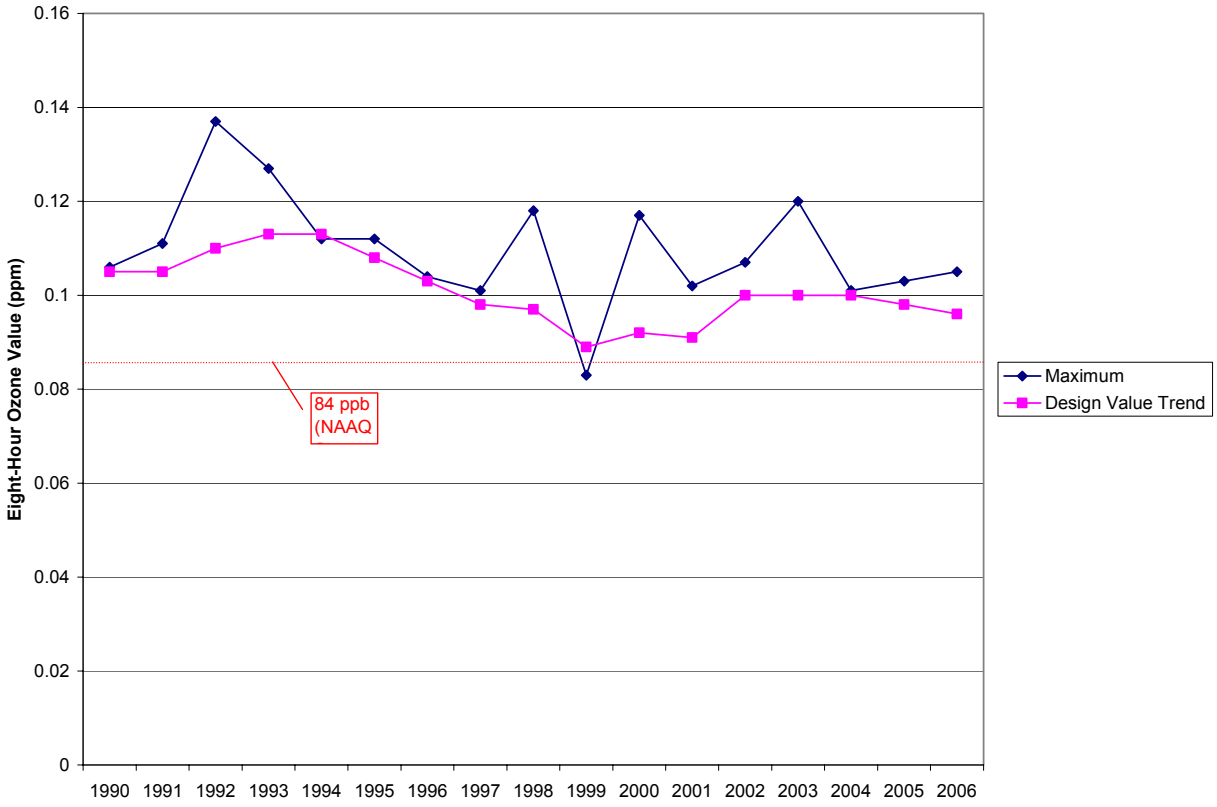
The Antelope Valley has experienced some improvement in 8-hour average ozone, as displayed in Figure II.3. The "design value" line superimposed on Figure II.3 shows the three-year average value used to determine the starting point for air quality planning purposes; it also shows more clearly the trend in ozone concentration by minimizing the fluctuations that may be influenced by year-to-year changes in the weather.

## B. Air Quality Planning

### 1. Air Quality Planning Activities

The 2008 plans adopted by both the AVAQMD and the MDAQMD were developed with input from local interested parties. Each district's plan was reviewed by an Air Pollution Advisory Committee made up of stakeholders appointed by the District board that recommended approval of the local plan. The AVAQMD published a draft of the Antelope Valley 8-Hour Ozone Plan for public review on April 20, 2008; the AVAQMD Board approved the plan at noticed public hearing on May 20, 2008. The MDAQMD released its draft plan for public review on April 25, 2008; the MDAQMD Board adopted the plan on June 9, 2008.

**Figure II.3 – AVAQMD 8-Hour Ozone Design Value Trend**




## C. Plan Evaluation

### 1. MDAQMD Emissions Inventory

The main sources of NOx emissions in the ozone nonattainment portion of the MDAQMD are heavy-duty diesel trucks, mineral processes and locomotives. The ROG inventory is dominated by off-road recreational vehicles, passenger vehicles and heavy-duty diesel trucks. The following two tables (Table II.1 and Table II.2) show the top ten NOx and ROG emission sources in the ozone nonattainment portion of the MDAQMD. While NOx emissions are projected to decline through the attainment year, ROG emissions are projected to increase, primarily because of projected growth in off-road recreational vehicle use.

## Table II.1 – MDAQMD NOx Emissions

(tpd, summer planning inventory)

| Source Category | 2006 | 2020 |
|---|---|---|
| HEAVY-DUTY DIESEL TRUCKS | 54 | 19 |
| MINERAL PROCESSES (MINING, CEMENT MANUFACTURING) | 32 | 39 |
| LOCOMOTIVES | 23 | 21 |
| PASSENGER VEHICLES[2] | 13 | 5 |
| *Passenger Cars* | 5 | 1 |
| *Light Trucks, Minivans and SUVs* | 6 | 2 |
| *Medium-Duty Trucks* | 2 | 1 |
| ELECTRIC UTILITIES | 7 | 9 |
| OFF-ROAD EQUIPMENT (CONSTRUCTION AND MINING) | 4 | 2 |
| MANUFACTURING AND INDUSTRIAL (BOILERS, IC ENGINES) | 3 | 3 |
| SERVICE AND COMMERCIAL (BOILERS, IC ENGINES) | 3 | 2 |
| GLASS AND RELATED PRODUCTS | 2 | 2 |
| COMMERCIAL AND DELIVERY GASOLINE TRUCKS | 1 | 1 |
| **TOTAL OF TOP 10** | **140** | **104** |
| **TOTAL MDAQMD – Federal Nonattainment Area** | **144** | **109** |
| **TOP 10 PERCENT OF TOTAL EMISSIONS** | **97%** | **96%** |

## Table II.2 – MDAQMD ROG Emissions

(tpd, summer planning inventory)

| Source Category | 2006 | 2020 |
|---|---|---|
| OFF-ROAD RECREATIONAL VEHICLES | 14 | 23 |
| PASSENGER VEHICLES | 10 | 4 |
| *Passenger Cars* | *5* | *1* |
| *Light Trucks, Minivans and SUVs* | *4* | *2* |
| *Medium-Duty Trucks* | *1* | *1* |
| HEAVY-DUTY DIESEL TRUCKS | 4 | 2 |
| CONSUMER PRODUCTS | 3 | 4 |
| PETROLEUM MARKETING (GASOLINE EVAPORATIVE LOSSES) | 3 | 3 |
| LOCOMOTIVES | 2 | 3 |
| MOTORCYCLES | 2 | 2 |
| ARCHITECTURAL COATINGS (PAINTS AND THINNERS) | 1 | 2 |
| MINERAL PROCESSES (MINING, CEMENT MANUFACTURING) | 1 | 1 |
| DEGREASING | 1 | 1 |
| **TOTAL OF TOP 10** | **40** | **44** |
| **TOTAL MDAQMD – Federal Nonattainment area** | **48** | **51** |
| **TOP 10 PERCENT OF TOTAL EMISSIONS** | **84%** | **86%** |

Numbers may not add exactly due to rounding
"Top 10" categories are prioritized by 2006 emissions

### 2. AVAQMD Emissions Inventory

Mobile sources provide most of the AVAQMD's NOx emissions, while the passenger vehicles, petroleum marketing, and degreasing dominate the district's

ROG inventory. Tables II.3 and II.4 show the top ten NOx and ROG emission sources in the Antelope Valley, and indicate that total local emissions will continue to decline into the region's attainment year, although more slowly for ROG.

## Table II.3 – AVAQMD NOx Emissions

(tpd, summer planning inventory)

| Source Category | 2006 | 2020 |
|---|---|---|
| OFF-ROAD EQUIPMENT (CONSTRUCTION AND MINING) | 11 | 5 |
| PASSENGER VEHICLES | 6 | 2 |
| *Passenger Cars* | 2 | 1 |
| *Light Trucks, Minivans and SUVs* | 2 | 1 |
| *Medium-Duty Trucks* | 1 | 1 |
| HEAVY-DUTY DIESEL TRUCKS | 5 | 2 |
| LOCOMOTIVES | 2 | 2 |
| MANUFACTURING AND INDUSTRIAL (BOILERS, IC ENGINES) | 1 | 1 |
| AIRCRAFT | 1 | 1 |
| COMMERCIAL AND DELIVERY GASOLINE TRUCKS | 1 | > 1 |
| SERVICE AND COMMERCIAL (BOILERS, IC ENGINES) | > 1 | > 1 |
| RESIDENTIAL FUEL COMBUSTION | > 1 | > 1 |
| SCHOOL BUSES | > 1 | > 1 |
| **TOTAL OF TOP 10** | **26** | **14** |
| **TOTAL AVAQMD** | **28** | **16** |
| **TOP 10 PERCENT OF TOTAL EMISSIONS** | **94%** | **89%** |

## Table II.4 – AVAQMD ROG Emissions

(tpd, summer planning inventory)

| Source Category | 2006 | 2020 |
|---|---|---|
| PASSENGER VEHICLES[2] | 7 | 4 |
| *Passenger Cars* | 4 | 2 |
| *Light Trucks, Minivans and SUVs* | 3 | 2 |
| *Medium-Duty Trucks* | 1 | 1 |
| PETROLEUM MARKETING (GASOLINE EVAPORATIVE LOSSES) | 3 | 3 |
| DEGREASING | 2 | 3 |
| CONSUMER PRODUCTS | 2 | 3 |
| OFF-ROAD EQUIPMENT (CONSTRUCTION AND MINING) | 1 | 1 |
| ARCHITECTURAL COATINGS (PAINTS AND THINNERS) | 1 | 1 |
| COATINGS (PAINTS AND THINNERS - NON ARCHITECTURAL) | 1 | 1 |
| AIRCRAFT | 1 | 1 |
| MOTORCYCLES | 1 | 1 |
| OFF-ROAD EQUIPMENT (LAWN AND GARDEN) | 1 | 1 |
| **TOTAL OF TOP 10** | **20** | **19** |
| **TOTAL AVAQMD** | **23** | **22** |
| **TOP 10 PERCENT OF TOTAL EMISSIONS** | **84%** | **85%** |

Numbers may not add exactly due to rounding
"Top 10" categories are prioritized by 2006 emissions

## 3. Control Measures

### i. Mojave Desert Air Quality Management District

#### a) Existing Control Measures

The MDAQMD has in place Reasonably Available Control Technology (RACT) requirements for the majority of sources (including gasoline dispensing vapor control), as well as a New Source Review program with a 25 ton per year major source level and a 1.3:1 offset ratio requirement. The MDAQMD recently adopted federal RACT rules for ship surface coating,[1] glass manufacturing,[2] and polyester resin operations.[3] Table II.5 shows the emission trends for the Mojave Desert.

**Table II.5 – MDAQMD Baseline Emission Trends**

(tpd, summer planning inventory)

| | ROG | | | NOx | | |
|---|---|---|---|---|---|---|
| **Source Category** | **2006** | **2020** | **% Change** | **2006** | **2020** | **% Change** |
| *Stationary & Area-wide* | 13 | 15 | 21% | 47 | 58 | 25% |
| *On-Road Motor Vehicles* | 16 | 8 | -51% | 69 | 27 | -62% |
| *Off-Road Vehicles and Equipment* | 20 | 27 | 40% | 29 | 24 | -16% |
| **TOTAL** | 48 | 51 | 5% | 144 | 109 | -25% |

Numbers may not add due to rounding

#### b) Proposed Control Measures

The MDAQMD is not proposing to adopt additional control measures for direct ozone precursor reduction purposes. With MDAQMD's proposed adoption of the three federal RACT rules shown below, the district will fulfill the Act's RACT adoption requirements. The MDAQMD is also analyzing the feasibility of adopting or amending 18 additional rules under the CCAA's "all feasible measures" mandate.

**Table II.6 – MDAQMD RACT Adoption Schedule**

| Rule Title | Rule Nature | Adoption Date |
|---|---|---|
| Residential Space Heaters | Federal RACT | 1/2009 |
| Publicly Owned Treatment Works | Federal RACT | 3/2009 |
| Graphic Arts Amendment | Federal RACT | 9/22/2008 |

[1] "Rule 1106 – *Marine Coating Operations*," amended October 23, 2006
[2] "Rule 1165 – *Glass Melting Furnaces*," amended January 28, 2008
[3] "Rule 1162 – *Polyester Resin Operations*," August 27, 2007

### ii. Antelope Valley Air Quality Management District

#### a) Existing Control Measures

The AVAQMD has in place RACT requirements for the majority of sources (including gasoline dispensing vapor control), as well as a New Source Review program with a 25 ton per year major source level and a 1.3:1 offset ratio requirement. Table II.7 shows the emission trends for the Antelope Valley.

**Table II.7 – AVAQMD Baseline Emission Trends**

(tpd, summer planning inventory)

| | ROG | | | NOx | | |
|---|---|---|---|---|---|---|
| **Source Category** | **2006** | **2020** | **% Change** | **2006** | **2020** | **% Change** |
| *Stationary & Area-wide* | 11 | 13 | 24% | 3 | 3 | 13% |
| *On-Road Motor Vehicles* | 9 | 5 | -40% | 12 | 5 | -57% |
| *Off-Road Vehicles and Equipment* | 4 | 4 | -7% | 14 | 8 | -5.8% |
| **TOTAL** | 23 | 22 | 4% | 28 | 16 | -43% |

Numbers may not add exactly due to rounding

#### c) Proposed Control Measures

The AVAQMD is not proposing to adopt additional control measures for direct ozone precursor reduction purposes. With AVAQMD's proposed adoption of the three federal RACT rules shown below, the district will fulfill the Act's RACT adoption requirements. The AVAQMD is also is reviewing rules for 13 source categories under the CCAA's "all feasible measures" mandate.

**Table II.8 - AVAQMD RACT Adoption Schedule**

| Rule Title | Rule Nature | Adoption Date |
|---|---|---|
| Internal Combustion Engines | Federal RACT | 1/2009 |
| Fugitive Dust | Federal RACT | 3/2009 |
| Agricultural Operations | Federal RACT | 12/16/2008 |

### 4. State Strategy

The 2007 State Strategy is expected to reduce combined ROG and NOx emissions in the Western Mojave Desert by approximately 43 tons per day in 2020. It is already reducing emissions in the South Coast and San Joaquin Valley. In the 2007 State Strategy, ARB has committed to achieve specified emission reductions in the South Coast and San Joaquin Valley in 2014, 2020,

and 2023, as well as a 2017 emission reduction goal specific to the San Joaquin Valley.

### 5. Contingency Measures

The 2007 State Strategy is projected to continue to reduce emissions beyond the Desert's 2020 attainment year. Statewide, the strategy is projected to reduce NOx emissions by an additional 40 percent, and ROG emissions by an additional 20 percent, from 2020 through 2023. In addition, the State has committed, with the SCAQMD and SCAG, to develop additional, far-reaching strategies needed to bring the South Coast Air Basin into attainment with the 8-hour ozone standard by 2023. The emission commitments in the 2007 State Strategy, and the controls that will be developed to ensure attainment of the ozone standard in the State's extreme areas, will provide both direct and indirect reductions beyond those included in the Western Mojave Desert's projection of attainment in 2020.

Formally, the MDAQMD has committed to request implementation of the Enhanced Smog Check Program should a contingency measure be triggered. Implementation is estimated to occur within one year once the contingency measure is triggered. The Enhanced Smog Check Program is already being implemented in the AVAQMD.

### 6. Reasonable Further Progress Demonstration

The Act requires areas classified as moderate or greater to demonstrate that their plans will result in steady progress towards attaining the federal standard. This RFP requirement ensures that areas will not delay implementation of emission control programs until immediately before the attainment date. As a serious nonattainment area, the Western Mojave Desert must demonstrate an average three percent per year reduction in ozone precursors, relative to the 2002 base year, on each milestone year through the attainment year.

Where both ROG and $NO_x$ emissions have been shown to contribute to high ozone levels, the Act allows $NO_x$ emission reductions to be used to augment ROG emission reductions in order to demonstrate RFP. In transport-impacted areas, the Act also allows upwind emissions to be taken into account when assessing RFP.

The locally adopted plan includes a demonstration that the rate of progress projected for the Western Mojave Desert meets the Act's requirements. The RFP demonstration takes into account projected emissions for upwind areas within 100 kilometers of the Western Mojave Desert – specifically, emissions generated in Orange County, and in the South Coast Air Basin portions of Los Angeles and San Bernardino counties – as allowed by U.S. EPA guidance. As required by the Act, emission reductions attributable to the federal Motor Vehicle

Control Program (MVCP) as it existed in 1990 have been excluded from the RFP calculations. This adjustment is shown as the "CA MVCP/RVP" adjustment. The RFP demonstration uses baseline emissions only; it does not rely on any emission reductions from the 2007 State Strategy.

### 7. Transportation Conformity Budgets

A transportation conformity emissions budget is the level of emissions from on-road motor vehicles that ensures an area makes progress toward clean air and ultimately meets air quality standards by the mandated deadline. Under the Act, transportation activities that receive federal funding or approval must be found to be fully consistent with a SIP that demonstrates attainment of the NAAQS. The MDAQMD and AVAQMD each adopted identical transportation conformity budgets for the Western Mojave Desert Ozone Nonattainment Area. The emission budgets established in this plan fulfill the requirements of the Act and U.S. EPA regulations to ensure that transportation projects will not interfere with progress towards, and attainment of, the 8-hour ozone NAAQS.

**Table II.9 – Western Mojave Desert Transportation Conformity Budget**

(tpd, summer planning inventory)

| | 2008 | | 2011 | | 2014 | | 2017 | | 2020 | |
|---|---|---|---|---|---|---|---|---|---|---|
| **Western Mojave Desert** | **ROG** | **NOx** | **ROG** | **NOx** | **ROG** | **NOx** | **ROG** | **NOx** | **ROG** | **NOx** |
| On-Road Mobile* | 22.7 | 82.0 | 19.8 | 70.5 | 16.6 | 54.9 | 14.5 | 43.1 | 13.2 | 35.4 |
| Adjustments to Baseline** | 0.0 | -4.4 | -0.1 | -4.4 | -0.1 | -4.1 | -0.1 | -3.9 | -0.1 | -3.7 |
| State Strategy Reductions | -- | -- | -- | -- | -3.4 | -15.3 | -2.5 | -14.1 | -1.7 | -7.4 |
| Conformity Budget*** | 23 | 78 | 20 | 67 | 14 | 36 | 12 | 26 | 12 | 25 |

* Using EMFAC2007
** Reductions from adopted rules not reflected in EMFAC
*** Budget is obtained by rounding up to the nearest ton

## D. Attainment Demonstration

### 1. Modeling Results

The Southern California regional photochemical modeling used to assess attainment of the 8-hour ozone standard in both Ventura County and the Western Mojave Desert is summarized in Part I of this report. The following table (Table II.10) shows the design value for each monitoring site in the Western Mojave Desert, based on 2001-2003 air quality data, and the projected future values with implementation of the 2007 State Strategy and local emission reduction commitments included in the SCAQMD's 2007 Air Quality Maintenance Plan.

**Table II.10 - Ozone Attainment Demonstration**

(ppb)

| Monitor Location | Baseline (2001-2003) Design Value | Projected Design Value | | |
|---|---|---|---|---|
| | | 2012 | 2017 | 2020 |
| Lancaster | 100.7 | 86.5 | 79.7 | 74.0 |
| Phelan | 104.7 | 92.6 | 86.7 | 80.5 |
| Victorville | 98.3 | 88.0 | 77.0 | 74.4 |
| Hesperia | 106.3 | 95.7 | 88.7 | 76.5 |
| Barstow | 87.6 | 79.7 | 73.2 | 79.5 |
| Twentynine Palms | 86.7 | 77.3 | 65.8 | 82.2 |

The modeling results indicate that it will not be possible to attain the 8-hour ozone NAAQS by 2010, the moderate area attainment deadline. The 2017 design values projected for Phelan and Hesperia exceed the standard, and the projected 88.7 ppb value in Hesperia exceeds the 87 ppb WOE attainment demonstration cutoff. The photochemical modeling projects attainment in 2020, which is consistent with the June 15, 2021 attainment deadline for severe-17 nonattainment areas.

### 2. Weight of Evidence Analysis

ARB staff's detailed WOE assessments for the Western Mojave Desert support the determination that this area will attain the 8-hour ozone NAAQS by the 2020 deadline for severe-17 areas. The ARB WOE assessments for the Mojave Desert and Antelope Valley AQMDs include the following analyses:

a. Photochemical modeling;
b. Air quality trends analyses;
c. Emissions and meteorological data;
d. Evaluation of other air quality indicators; and
e. Additional air quality modeling.

## E. Staff Recommendations

As described in this report, ARB staff has reviewed the 2008 8-Hour Ozone Attainment Plan for the Western Mojave Desert Nonattainment Area (2008 Ozone Plan), and consulted with District staff during this review.

ARB staff finds that the 2008 Ozone Plan meets applicable requirements and concludes that implementation of this plan would reduce ozone levels throughout the Western Mojave Desert, thereby resulting in attainment of the 8-hour ozone NAAQS by June 2021. Therefore, we recommend that the Board take the following actions:

1) Adopt the 2008 Ozone Plan as a revision to the California SIP, including the control strategy, emission inventories, attainment demonstration, and motor vehicle emission budgets.

2) Direct the Executive Officer to submit the plans to U.S. EPA as a revision to the California SIP.

## III. VENTURA COUNTY OZONE NONATTAINMENT AREA

### A. Introduction

On June 15, 2004, U.S. EPA designated Ventura County a moderate nonattainment area based on monitored ozone values from the previous three years. Moderate ozone nonattainment areas are required to attain federal 8-hour ozone NAAQS by June 15, 2010. On January 23, 2008, the VCAPCD requested a reclassification to a serious nonattainment area since the results of photochemical modeling indicated that Ventura County would not attain the standard by 2010, and would need additional time to achieve the necessary emission reductions. U.S. EPA approved the VCAPCD request effective June 19, 2008.

On May 13, 2008, the VCAPCD adopted the 2007 8-Hour Ozone Plan. ARB staff reviewed the 2007 Ozone Plan and is recommending that the Board approve the 2007 Ozone Plan and submit it to U.S. EPA as a revision to California's SIP.

### B. Background

#### 1. Profile of Ventura County

Ventura County is located west of Los Angeles County and is bordered by Kern County to the north, Santa Barbara County to the west, and the Pacific Ocean to the southwest. It includes the Channel Islands National Park and serves as a gateway to this five-island marine sanctuary. Ventura County's economic base includes agriculture, biotechnology, telecommunications, and manufacturing activities, as well as tourism, military testing, and development. Port Hueneme serves as the western U.S. distribution network for many imported vehicles, and houses the largest refrigerated fruit terminal on the West Coast.

Ventura County has a combination of undeveloped and agricultural lands, as well as developed urban areas. The Los Padres National Forest accounts for 860 square miles of the northern portion of the County (46 percent of the County's land mass). The County's mountains, valleys and seashore give the area six different microclimates, more than any other county in the nation.

Elevated smog occurs in Ventura County from May through October, when high temperatures and stable atmospheric conditions favor ozone formation. Ozone generally reaches peak levels by mid-afternoon and, along with ozone precursors, is often blown inland by the prevailing winds. As a result, inland areas such as Simi Valley, Thousand Oaks, Ojai, Fillmore, and Piru continually have higher ozone levels and more days in exceedance of the federal ozone standard than the County's coastal areas.

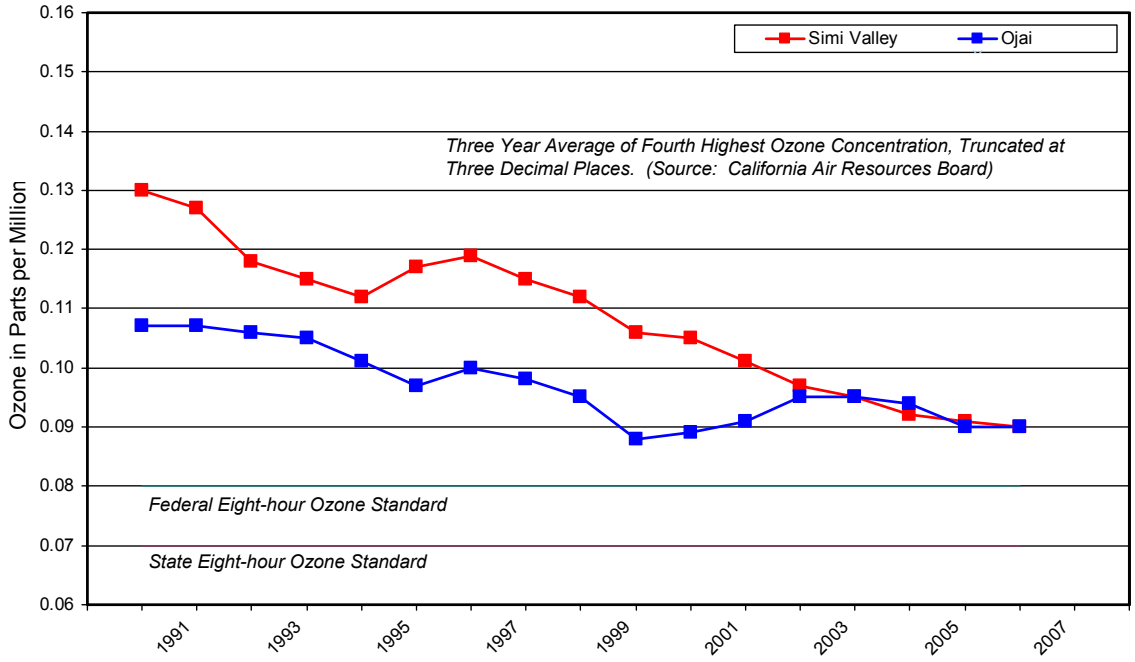
Ozone in the Ventura County Nonattainment Area is caused by both locally generated emissions and transport from the South Coast; the Los Angeles County portion of the South Coast Air Basin lies directly east of Ventura County. In-port and offshore emissions from shipping-related operations also impact Ventura County's air quality. The federal 8-hour ozone nonattainment area includes all of Ventura County except the Channel Islands.

### 2. Historical Air Quality

All indicators reviewed in the locally adopted plan show significant improvement in Ventura County's air quality over the last two decades. The number of days over the 8-hour ozone NAAQS decreased by 85 percent, while other key indicators including the design value (an average of the fourth highest value in each of three consecutive years) declined by approximately 30 percent.

As recently as ten years ago, the County's design value was approximately 40 percent above the standard, and design values at each of the County's seven monitoring sites exceeded the federal standard. By 2006, five Ventura County monitoring sites met the federal standard: El Rio, Emma Wood State Beach, Thousand Oaks, Ventura County (West Casitas Pass Road), and Piru. At 0.09 ppm, the 2006 design values at the remaining nonattainment sites, Ojai and Simi Valley, are less than ten percent above the standard, as shown in Figure III.1.

## Figure III.1 - 8-Hour Ozone Values for Simi Valley and Ojai Valley




## C. Air Quality Planning

### 1. Recent Air Quality Planning Activities

The VCAPCD held a public workshop and provided two public review periods in the development of its current 8-hour ozone plan. The first draft was available for public comment from March 1, 2007 to April 6, 2007, and a second draft was available for public comment from March 25, 2008 to April 24, 2008. On May 13, 2008, the VCAPCD approved the 2007 8-hour ozone plan and negative declaration for the plan at a duly noticed local hearing.

## D. Plan Evaluation

### 1. Emissions Inventory

Mobile sources form the bulk of Ventura County's NOx inventory, with ships and boats vying with on-road mobile sources for the top spot (Table III.1). With ROG emissions from mobile sources projected to decline, area sources are becoming an increasingly significant portion of the ROG inventory (Table III.2).

## Table III.1 – Ventura County NOx Emissions

(tpd, summer planning inventory)

| Source Category | 2006 | 2012 |
|---|---|---|
| SHIPS AND COMMERCIAL BOATS | 16 | 20 |
| *Commercial Harbor Craft* | *3* | *3* |
| *Ocean Going Vessels* | *13* | *17* |
| PASSENGER VEHICLES | 12 | 7 |
| *Passenger Cars* | *4* | *2* |
| *Light Trucks, Minivans and SUVs* | *5* | *3* |
| *Medium-Duty Trucks* | *2* | *1* |
| OFF-ROAD EQUIPMENT (CONSTRUCTION AND MINING) | 8 | 6 |
| HEAVY-DUTY DIESEL TRUCKS | 8 | 6 |
| OFF-ROAD EQUIPMENT (OTHER) | 5 | 4 |
| FARM EQUIPMENT (COMBINES AND TRACTORS) | 3 | 2 |
| COMMERCIAL AND DELIVERY GASOLINE TRUCKS | 3 | 2 |
| AGRICULTURAL IRRIGATION PUMPS | 2 | 0 |
| LOCOMOTIVES | 2 | 1 |
| ELECTRIC UTILITIES | 2 | 2 |
| **TOTAL OF TOP 10** | **61** | **50** |
| **TOTAL VCAPCD** | **68** | **58** |
| **TOP 10 AS A PERCENT OF TOTAL EMISSIONS** | **90%** | **87%** |

Numbers may not add due to rounding

"Top 10" categories are prioritized by 2006 emissions

## Table III.2 – Ventura County ROG Emissions

(tpd, summer planning inventory)

| Source Category | 2006 | 2012 |
|---|---|---|
| PASSENGER VEHICLES | 13 | 8 |
| *Passenger Cars* | *7* | *4* |
| *Light Trucks, Minivans and SUVs* | *4* | *3* |
| *Medium-Duty Trucks* | *2* | *1* |
| CONSUMER PRODUCTS | 5 | 5 |
| PESTICIDES | 5 | 5 |
| RECREATIONAL BOATS | 4 | 3 |
| ARCHITECTURAL COATINGS (PAINTS AND THINNERS) | 3 | 3 |
| OFF-ROAD EQUIPMENT (LAWN AND GARDEN) | 3 | 2 |
| OFF-ROAD RECREATIONAL VEHICLES | 3 | 3 |
| DEGREASING | 2 | 2 |
| COATINGS (PAINTS AND THINNERS - NON ARCHITECTURAL) | 2 | 2 |
| OIL AND GAS PRODUCTION (EVAPORATIVE LOSSES/FLARING) | 2 | 2 |
| **TOTAL OF TOP 10** | **42** | **35** |
| **TOTAL VCAPCD** | **54** | **48** |
| **TOP 10 AS A PERCENT OF TOTAL EMISSIONS** | **77%** | **73%** |

Numbers may not add exactly due to rounding

"Top 10" categories are prioritized by 2006 emissions

The SIP must provide for sufficient emission reductions in 2012 in order to demonstrate attainment in 2013. The following table (Table III.3) summarizes emission reductions between 2006 and 2012. Emissions of ROG are predicted to decline by 12 percent and NOx by 15 percent, with the largest reductions coming from on-road mobile sources.

**Table III.3 – Ventura County Baseline Emissions with Measures Adopted as of 2006**
(tpd, summer planning inventory)

| | ROG | | | NOx | | |
|---|---|---|---|---|---|---|
| **Source Category** | **2006** | **2012** | **Change** | **2006** | **2012** | **Change** |
| Stationary and Area-wide | 24 | 25 | 3% | 7.7 | 7.6 | 2% |
| On-Road Motor Vehicles | 15 | 10 | -36% | 23 | 14 | -36% |
| Off-Road Vehicles and Equipment | 15 | 13 | -12% | 37 | 35 | -4% |
| **TOTAL** | 54 | 48 | -12% | 68 | 58 | -15% |

Numbers may not add due to rounding

### i. Emission Reduction Credits

Federal New Source Review (NSR) rules require new and modified major stationary sources that increase emissions in amounts exceeding specified thresholds to provide emission reduction offsets to mitigate the emissions growth. Emission reduction offsets represent either on-site emission reductions or the use of banked emission reduction credits (ERCs). Table III.4 shows the ERCs registered with the VCAPCD for future use as offsets.

**Table III.4 - Ventura County Emission Reduction Credits ERCs Issued 2002 and Earlier, tpd**

| Pollutant | ERC Total |
|---|---|
| NOx | 0.51 |
| ROG | 1.67 |

## 2. Control Measures

Currently adopted controls under district, State, and federal jurisdiction will provide continued reductions in ozone precursors for the 2013 attainment deadline. VCAPCD's 2007 Plan also commits to the development of four local control measures.

### i. Existing Control Measures

*Stationary Source Control Measures*

The Act requires nonattainment areas to demonstrate that they have adopted rules at least equivalent to RACT. The VCAPCD adopted its RACT SIP in June 2006. The RACT SIP found that all VCAPCD rules that apply to ozone precursor emissions fulfill RACT requirements for the 8-hour ozone NAAQS. The RACT SIP also found that all sources subject to Control Technology Guidelines (CTG) meet RACT.

Local air districts are responsible for controlling emissions from most stationary and area-wide sources. Most of the VCAPCD rules were fully implemented by 2005 and are reflected in the base year inventory used to develop this plan. The VCAPCD's NSR cutoffs of five tons per year for both NOx and ROG are already below the serious nonattainment area threshold of 50 tons per year as specified in the Act, and the County's 1.3:1 offset ratio exceeds the required minimum 1.2:1 offset ratio.

*Transportation Source Measures*

U.S. EPA identified 16 transportation control measures (TCM) categories that must be evaluated as part of a RACM demonstration. TCMs include options for reducing vehicle use or conditions that lead to higher vehicle emissions. The VCAPCD, along with SCAG and the Ventura County Transportation Commission, reviewed the measures to determine their feasibility.

### ii. Proposed Control Measures

As part of its plan, the VCAPCD committed to consider the adoption of four additional measures, three of which are proposed to be implemented by the 2012 attainment year. If adopted, these measures will provide reductions that were not included in the photochemical modeling.

**Table III.5 – Ventura County Proposed District Control Measures**

| District Rule | Control Measure | Adoption | Implementation |
|---|---|---|---|
| 74.18 | Motor Vehicle and Mobile Equipment Coating Operations | 2008 | 2010 |
| 74.12 | Surface Coating of Metal Parts and Products | 2008 | 2009 |
| 74.2 | Architectural Coatings | TBD | TBD |
| 74.29 | Soil Decontamination Operations | 2008 | 2009 |

TBD = to be determined

### 3. State Control Strategy

ARB's emission reduction commitments in the 2007 State Strategy specify total reductions to be achieved in the South Coast and San Joaquin Valley Air Basins in 2014, 2020, and 2023 and, for the San Joaquin Valley only, in 2017. The implementation of the measures identified to meet these commitments is expected to reduce combined ROG and NOx emissions in Ventura County by an approximately eight tons per day in 2012. These expected emission reductions were not included in the attainment demonstration modeling.

### 4. Contingency Measures

ARB's ongoing mobile source control program will provide emission reductions beyond Ventura County's attainment year that will serve as a contingency measure should the County fail to attain the ozone NAAQS in 2012, as shown below in Table III.6. Emissions in upwind areas are also expected to decrease during this period: baseline ROG and NOx emissions from all sources are expected to decrease by three and eight percent, respectively, from 2012 through 2014.

**Table III.6 – Ventura County Mobile Source Emissions**

| Source Category | ROG | | | NOx | | |
|---|---|---|---|---|---|---|
| | **2012** | **2013** | **2014** | **2012** | **2013** | **2014** |
| On-Road Mobile | 10 | 8 | 7 | 15 | 13 | 11 |
| Off-Road Mobile* | 13 | 13 | 13 | 35 | 35 | 35 |
| **Total** | 23 | 21 | 20 | 50 | 48 | 47 |

*Off-road emissions extend to 100 nautical miles offshore.

### 5. Reasonable Further Progress Demonstration

Federal law specifies that each ozone nonattainment area must demonstrate ongoing emission reductions relative to the base year (2002). Federal law requires a three percent per year reduction in VOC emissions, and does not allow credit to be taken for pre-1990 federal motor vehicle control programs. Where both VOC and NOx emissions have been shown to contribute to high ozone levels, the Act allows NOx emission reductions to augment VOC emission reductions in order to demonstrate RFP.

The Ventura County plan includes an RFP demonstration that meets the Act's requirements. The analysis indicates that the adopted measures from ARB's mobile source program will provide emissions reductions beyond those needed for Ventura County's RFP demonstration. Emissions generated in the South Coast Air Basin portion of Los Angeles County were included in Ventura County's RFP demonstration as allowed by U.S. EPA guidance. As part of the RFP demonstration, the VCAPCD will rely on a portion (three percent) of surplus NOx reductions set aside in 2008 for RFP contingency purposes for all milestone years.

In September, 2007 the Board adopted revisions to the Pesticide Element of the 1994 Ozone SIP for the Ventura County Nonattainment Area. The revisions provided a limited-term substitution of surplus ROG reductions from other measures in ARB's strategy as a substitution for part of the 1994 Department of Pesticide Regulation (DPR) pesticide emission reduction commitments. DPR recently adopted fumigant regulations that will make up the shortfall by 2012. Since the regulations were only recently approved, and are still in litigation, the benefits are not included in the inventory. The Ventura County RFP calculations do not include any reductions from the DPR regulations. Consequently, the pesticide reductions are not needed to meet RFP or attainment. We expect that future updates to the inventory will include the benefits of the regulations as DPR reports it actual emissions with the regulations in place.

### 6. Transportation Conformity Budgets

Normally, conformity budgets are set with RFP Plans. However, U.S. EPA is revising its RFP regulations for areas such as Ventura County where air quality is impacted by air pollution transported from upwind regions. Until those revisions are complete, U.S. EPA will not approve conformity budgets for such areas.

To keep the transportation planning process moving, ARB staff prepared early progress plans (EPP) for the sole purpose of establishing transportation conformity emission budgets for nonattainment areas affected by U.S. EPA's revisions. ARB held a public 30-day comment period for the EPPs which were approved by the Board in February, 2008 and deemed adequate by U.S. EPA in April, 2008.

Ventura County's 2007 AQMP includes the following conformity budget for a serious 8-hour ozone nonattainment area. Table III.7 summarizes the motor vehicle emissions budget for transportation conformity purposes under a serious federal 8-hour ozone classification. Once U.S. EPA approves the budget, it will supersede the EPP's conformity budget and serve as the conformity emissions budget for future transportation conformity determinations in Ventura County.

**Table III.7 - On-Road Motor Vehicle Emission Budgets**
(tpd, summer planning inventory)

| | 2008 | | 2011 | | 2012 | |
|---|---|---|---|---|---|---|
| **Ventura** | **ROG** | **NOx** | **ROG** | **NOx** | **ROG** | **NOx** |
| On-Road Mobile* | 12.7 | 20.0 | 10.6 | 16.3 | 10.0 | 15.2 |
| Adjustments to Baseline** | 0.0 | -0.4 | 0.0 | -0.4 | 0.0 | -0.4 |
| State Strategy Reductions | | | | | -1.2 | -2.5 |
| Conformity Budget*** | 13 | 20 | 11 | 16 | 9 | 13 |

* Using EMFAC2007
** Reductions from adopted rules not reflected in EMFAC
*** Budget is obtained by rounding up to the nearest ton

## E. Attainment Demonstration

The Southern California regional photochemical modeling used to assess attainment of the 8-hour ozone standard in Ventura County is summarized in Part I of this report. The plan provides a comprehensive description of the modeling approach and inputs used in the model.

### 1. Modeling Results

Using the emissions inventory reflecting a controlled emissions scenario for the projected year 2012, the simulation results were used to calculate 8-hour ozone design values. Table III.8 shows the design value for each monitoring site in Ventura County, based on 2001-2003 air quality data, and the projected future values with implementation of the 2007 State Strategy and local emission reduction commitments made by the SCAQMD included in its 2007 AQMP.

**Table III.8 – Ozone Attainment Demonstration**
(ppm)

| Site | Baseline Design Value (2001-2003) | Projected Design Value (2012) |
|---|---|---|
| Ojai | .094 | .087 |
| Piru* | .088 | .076 |
| Simi Valley | .092 | .084 |

* The Piru monitoring site attained the standard in 2006

### 2. Weight of Evidence Analysis

In Table III.8, the high value of .087 ppm at Ojai in 2012 is within the range of values for which U.S. EPA guidelines allow the use of supplemental analyses to demonstrate attainment. ARB staff prepared a WOE analysis for Ventura County that assessed air quality trends, emission trends, the special distribution of ozone

concentrations throughout the County, and precursor concentrations measured at the two Photochemical Assessment Monitoring Stations (PAMS) in Ventura County. The WOE concluded that Ventura County would attain the federal 8-hour ozone standard by 2012.

## F. Staff Recommendations

As described in this report, ARB staff has reviewed the 2007 Ventura County 8-Hour Ozone Plan, and consulted extensively with VCAPCD staff during this review. ARB staff finds that the plan meets applicable requirements and concludes that implementation of this plan would reduce ozone levels throughout Ventura County, thereby resulting in attainment of the 8-hour ozone standard by June, 2013. Therefore, we recommend that the Board take the following actions:

(1) Adopt the 2007 Ventura County 8-Hour Ozone Plan as a revision to the California SIP, including the control strategy, emission inventories, attainment demonstration, and motor vehicle emission budgets.

(2) Direct the Executive Officer to submit the plan to U.S. EPA as a revision to the California SIP.